Bridges to Stem Cell Research and Therapy at Pasadena City College

Grant Award Details

Bridges to Stem Cell Research and Therapy at Pasadena City College

Grant Type: Bridges

Grant Number: EDUC2-12607

Project Objective: This program provides stem cell training for up to 10 undergraduate students per year for 5 years at Pasadena City College and other local community colleges. Training includes coursework, outreach activities, and a 12 month research internship in stem cell and gene therapy science at local research institutions.

Investigator:

Name:	Pamela Eversole-Cire
Institution:	Pasadena City College
Type:	PI

Award Value: $3,605,500

Status: Active

Grant Application Details

Application Title: Bridges to Stem Cell Research and Therapy at Pasadena City College

Public Abstract:

This project will support further development of an existing stem cell biology training program featuring varied internship opportunities at established host institutions, a rigorous curriculum, substantive auxiliary training, and advanced stem cell techniques coursework. Based upon their demographics (79% minorities, 47% low-income, and 45% first-generation), extensive experience in biotechnology training, and an effective current internship program, the applicant institution anticipates that interns recruited for this project will strongly represent the diversity of California's population. Recruitment of interns will encompass strong community outreach (including dissemination of stem cell education module), inviting students from local colleges to seminars and activities, advertising to campus and community, and leveraging support from established biotechnology research and training centers.

This CIRM Bridges project will provide up to 50 one-year internships over five years. Interns will be offered research opportunities with mentors in fields ranging from basic science of stem cells to translational research in regenerative medicine to gene therapy, and will be required to complete Certificates of Achievement in Biological Technology (or equivalent) and Stem Cell Culture. Stem cell-related coursework includes specialized techniques and instrumentation, stem cell-based biomanufacturing, fluorescent microscopy, and a journal club. A stem cell unit has been added to genetics, bioethics, and bioinformatics courses. Stem cell modules have been produced at college and secondary levels. Auxiliary training includes seminars (intellectual property and confidentiality, stem cells and regenerative medicine, bioethics, stem cell careers, advising and career development, diversity in STEM, disparity in healthcare), specialized workshops (data management, bioinformatics, flow cytometry, confocal microscopy, real-time imaging, cell and gene therapies manufacturing, scientific communication, and graduate school applications), scientific meetings and symposiums, and research presentations. Interns will also take part in patient and healthcare engagement activities and study the regulatory pathway in therapy development. In addition, the project will implement a Diversity, Equity and Inclusion Plan that incorporates targeted outreach to disadvantaged and first-generation students.

By combining established programs and partnerships, rigorous curriculum, mentoring at both home and host institutions, performance evaluations of trainees and program, and experienced leadership and research opportunities at partner institutions, the program will produce highly qualified lab personnel for stem cell research in both academic and industry settings. The training will prepare CIRM Bridges interns to work at many levels in stem cell research and therapy labs (lab assistant, lab manager, professional staff, and research associates), or to continue in postgraduate programs.

Statement of Benefit to California:

This CIRM Bridges to Stem Cell Research and Therapy Award aligns with and will fulfill CIRM's objectives to: create stem cell training programs that significantly enhance the technical skills, knowledge, and research experience of a diverse cohort of trainees in the development of stem cell-based and gene therapies; foster a commitment among trainees to the goal of accelerating the delivery of stem cell-based and gene therapies to patients; and broaden the participation in stem cell science of individuals representing the diversity of California's population. The diversity of prospective interns is ensured by both the applicant institution's demographics (79% are minorities, 47% are low-income, and 45% are first-generation) and their broad experience with disadvantaged and underrepresented student populations in their biotechnology and internship programs.

The grant supports and enhances an existing stem cell biology training program that includes:
• internship opportunities with mentors in fields ranging from basic science of stem cells to translational research in regenerative medicine to gene therapy
• up to 50 one-year internships over life of the grant
• rigorous curriculum and established Biotechnology Certificate Program
• established partnerships between the home institution and host institutions
• substantive auxiliary training opportunities
• advising and career development and job preparation program
• cell and gene therapy good manufacturing practices (GMP)
• patient and healthcare engagement activities
• coursework on the regulatory pathway and therapy development process
• advanced stem cell techniques coursework
• bioinformatics, optical imaging, and FACs training workshops and seminars
• extensive mentoring and program evaluation strategies
• experienced leadership at partner institutions
• a Diversity, Equity and Inclusion Plan to ensure that outreach to underrepresented groups is prioritized within the intern recruitment process.

These attributes will ensure that the program produces highly qualified lab personnel from diverse backgrounds for stem cell research in both academic and industry settings.
